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Raxita Neupane

University of San Diego, rneupane@sandiego.edu

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UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science

DOCTOR OF NURSING PRACTICE

Reducing Obesity Rates Among Adults in a Primary Care Setting:

An Evidence-Based Practice Project

by

Raxita Neupane

A Doctor of Nursing Practice Portfolio presented to the

FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE

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DOCTOR OF NURSING PRACTICE

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Faculty Advisor – Razel Bacuetes Milo Ph.D., DNP, MSN, FNP-C, RN

Clinical Mentor – Alwin Bagingito MD

Abstract

Background: Over 60% of adults in the United States meet the criteria for being overweight or obese. The estimated obesity-related health care costs are as high as \$147 billion per year. Despite the alarming health risks and increasing health care costs, the rates of screening and counseling for obesity in the primary care setting are merely 30%. This project outlines weight-management counseling strategies.

Purpose of Project: The purpose of the evidence-based practice project was to implement patient-tailored evidence-based nutritional assessment tools and intensive behavioral counseling. The ultimate goal was to reduce body mass index (BMI) among overweight and obese patients by 5%.

Evidenced-Based Interventions: The target population for this project was patients 18 years of age and older with a BMI above 25. Project participants ($N = 20$) were recruited and enrolled from July 2020-December 2020. During the project, participants completed a nutritional assessment interview and behavioral counseling sessions at the clinic location and phone. A trained, multidisciplinary team of nurse practitioners, physicians, and medical assistants assisted in implementing customized behavioral counseling. Clinic follow-up, phone-call interviews, and behavioral counseling were performed on selected patients once a month for six months. The patient's height, weight, and BMI were recorded in the electronic health record every month for data collection and evaluation. Systematic reviews report that nutritional assessment and behavioral counseling can reduce BMI by 5%-10% and assist in weight loss.

Evaluation/Results: Six months after implementing an evidence-based practice project with customized motivational nutritional tools and intensive behavioral counseling, 50% of patients achieved weight loss. An average reduction in BMI was 1.2%.

Implications for Practice: The project demonstrates success in weight reduction and health improvement in a select patient population. The sustainability of the project should result in significant cost savings.

Conclusions: Tailored evidence-based nutritional assessment and motivational, intensive behavioral counseling in a primary care setting is feasible and can reduce BMI among overweight and obese patients.

Background

Obesity has reached a global pandemic state. In many countries, the prevalence of obesity nearly doubled over the last 30 years (Balani et al., 2019). By 2030, an estimated 38% of the world's adult population will be overweight, and 20% will be obese (Fitzpatrick et al., 2016). The U.S. Preventative Services Task Force (2018) defined overweight as a body mass index (BMI) of 25 kg/m²-29.9 kg/m² and obesity as a BMI equal to or greater than 30 kg/ m². According to the Centers for Disease Control and Prevention (CDC, 2021), obesity affects approximately 93.3 million adults in the United States. In 2018, the cost burden related to obesity in the United States was \$190.2 billion, or nearly 21% of overall healthcare costs. The cost of medical care for obese people was \$1,429 higher than those with a healthy weight. Obesity-related conditions include heart disease, stroke, type 2 diabetes, and certain types of cancer: leading causes of preventable and premature death (CDC, 2021). An estimated 300,000 deaths per year (i.e., 822 deaths per day) are due to obesity. Obesity is now the second-highest risk factor for COVID-19 hospitalizations (Garg et al., 2020).

Despite alarming health risks and increasing health care costs, the rate of screening and counseling for obesity is only 30% in the primary care setting (Sherman et al., 2017). Poor adherence to lifestyle intervention and motivation remains the critical factor in hindering treatment for obesity (Burgess et al., 2017). Nutritional assessment and intensive behavioral counseling for overweight and obese patients could reduce BMI by 5% - 10% (Teixeira et al., 2015). Studies reveal that primary care providers' education in weight management potentially influences a slight decrease in their patients' weight (Fitzpatrick et al., 2016).

In a systematic review by Sherman et al. (2017), a metanalysis of randomized control trials and practice guidelines revealed that nutritional assessment and behavioral counseling could reduce BMI by 5%-10% and assist in weight loss. Added benefits for patients with weight loss included significant risk reduction in developing cardiovascular disease, improved diabetes, and reduced blood pressure (Gemming et al., 2015). A combination of therapy and a comprehensive weight management program consisting of diet, physical activity, and behavior modification was more successful in promoting weight loss and weight maintenance than a single treatment in isolation (Ferraro & Winter, 2014).

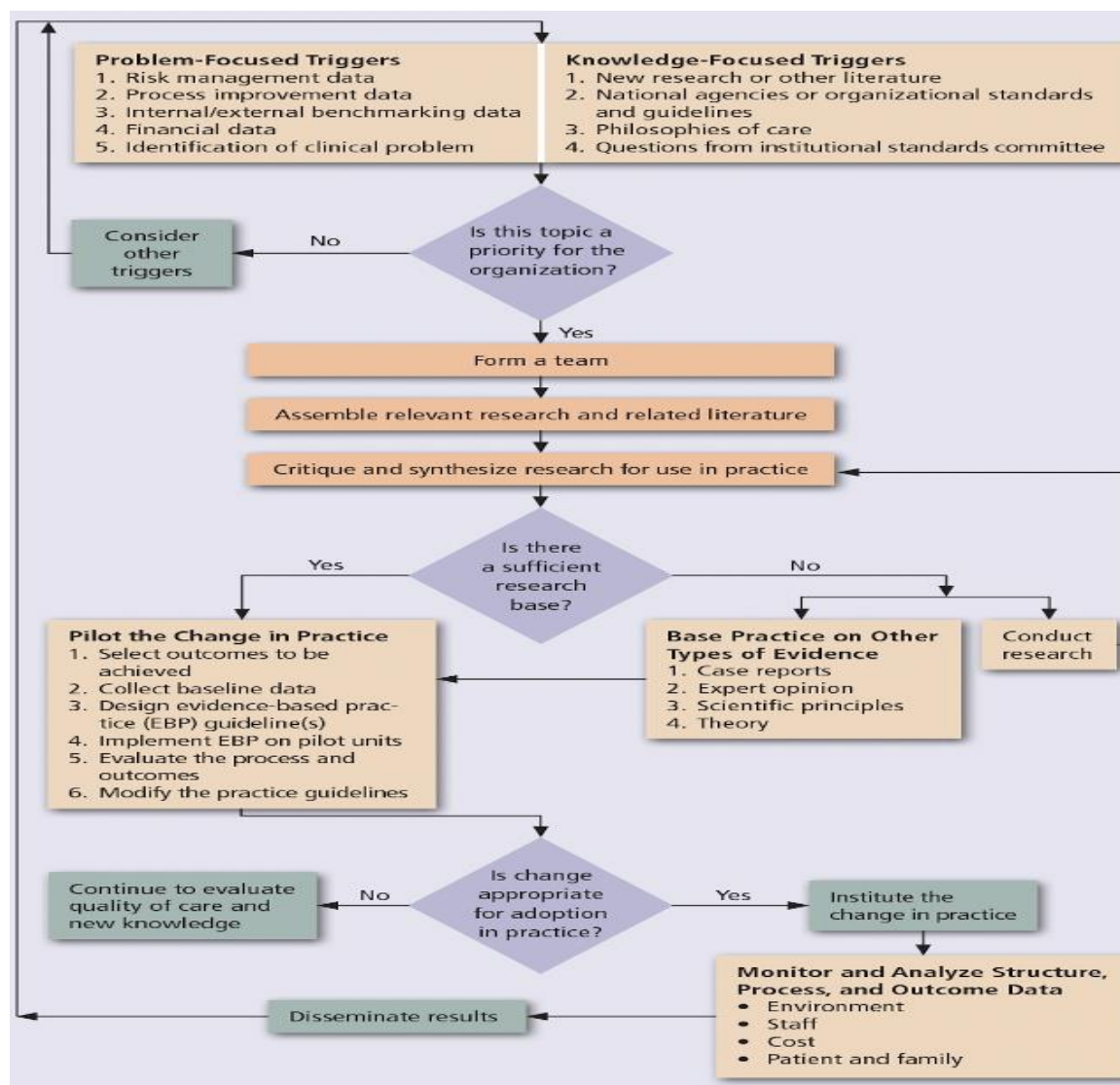
People who engage in 60-75 minutes of brisk walking or 35 minutes-40 minutes of jogging could burn 400-500 calories per day (Ferraro & Winter, 2014). In a 2-year observational clinical study of 271 participants with a BMI greater than 25 kg/m², Sherman et al. (2017) reported that health coaching was associated with a 7.24 % initial weight loss after 12 months and a 6.77% weight loss after 24 months (95% CI [8.68, 6.90] and [8.78, 4.76], respectively). The study concluded that health coaching assisted in achieving more than a 5% weight loss among patients ($p < .001$). Balani et al. (2019) suggested assessing a patient's readiness for change before implementing the motivational interview. It was vital in helping patients manage self-regulation eating patterns and engage in activities to promote long-term weight management.

The purpose of this evidence-based practice (EBP) project was to implement patient-tailored, evidence-based nutritional assessment and motivational, intensive behavioral counseling in a primary care setting to reduce BMI by 5% among selected overweight and obese patients within six months.

Methods

Design

According to Melnyk and Fineout-Overholt (2019), Marita G. Titler, Ph.D., RN, FAAN, Director of Nursing Research at University of Iowa Hospital, developed the Iowa Model of EBP (Figure 1) that has been widely used since 1994 to guide the implementation of research into clinical practice. The Iowa model, recognized for its ease of use by healthcare providers, uses evidence-based knowledge and utilizes the entire health care system, including the providers, patients, and infrastructure, to guide practice decisions (Melnyk & Fineout-Overholt, 2019). It outlines a simple, step-by-step process with feedback loops.

Figure 1*Iowa Model*

Note. From “*Evidence-based Practice in Nursing and Healthcare: A Guide to Best Practice* (4th ed.),” by B. M. Melnyk, and E. Fineout-Overholt, p. 392. Copyright 2019 by Wolters Kluwer & Lippincott.

The Rationale for Model Selection

The Iowa Model is designed to guide clinicians through the EBP process. The model includes several feedback loops, reflective analysis, evaluation, and modification based on the structure process's evaluative data (Brown, 2014). The priority of the Iowa

model framework is to recognize an existing problem in a clinical setting. Establishing an issue earlier in the EBP process aids in the effective implementation of a change project and cultivates the most relevant research. As EBP is a problem-solving approach, one can identify obesity as an existing problem in a family practice clinical setting. The Iowa model could be integrated with a step-by-step approach in clinical decision-making driven by the best evidence from well-designed studies with clinician's expertise that respects patients' preferences and values (Melnik & Fineout-Overholt, 2019). This EBP project aimed to implement a simple, user-friendly, and sustainable nutritional assessment tool that emphasizes motivational interview questions to assist in managing overweight and obese patients.

Model Strength

The Iowa Model's strength is its framework designed to simplify identifying opportunities and problems and using evidence-based problem-solving tools to implement research into practice in any clinical setting. In this project's family practice clinical setting, obesity was an ongoing problem among patients 18 years of age and older and represented the first step in the Iowa Model. An evaluation of selected patients included calculating their BMI and the healthcare provider's knowledge. The last step was determining if the nutritional assessment tool was a sustainable, evidence-based approach for this clinical setting.

Model Weakness

Barriers in implementing an EBP project include buy-in from stakeholders, knowledge deficits among clinic staff, lack of clinical guidelines, compliance by patients, and cost. As the Iowa model framework does not incorporate these barriers

simultaneously, the length and time needed to implement all the steps for a successful project must be considered. A well-established entity aligned with the evidence was needed to evaluate whether the nutritional assessment tool was sustainable in the family practice setting.

Setting and Population

This EBP project was implemented at a small private practice setting focused on family medicine located in southern California. Most clinic patients were established with the providers and managed for chronic conditions such as diabetes, hypertension, and hyperlipemia. A significant number of patients who had been diagnosed with chronic conditions were overweight or obese. The clinic had not tried a nutritional assessment tool or behavioral counseling to manage obesity. Therefore, this project was implemented to educate patients and providers on evidence-based tools related to obesity management for improved health outcomes. The target population was patients 18 years of age and older with a BMI score above 25. The physician and nurse practitioner identified the participants. Verbal consent was obtained from each participant and enrolled in the project from July 2020–December 2020.

Process and Intervention

An Iowa Model-based EBP project was initiated following letters of support from the faculty advisor and the clinical mentor in the primary care clinic. The University of San Diego granted institutional Review Board approval in July 2020. The U.S. Preventative Services Task Force (2018) recommended that all adults aged 19 years or older should be screened for obesity using BMI and be offered intensive counseling and behavioral intervention to promote sustained weight loss in obese adults. Participants

completed the nutritional assessment interview and behavioral counseling sessions at the clinic and by phone, focusing on diet, physical activity, motivation, and mindset (Figure 2).

Figure 2

Behavioral Modification Motivational Tool

My Weight-Management Plan

Obesity is a disease that can become more severe over time. Even with the help of a prescription treatment for chronic weight management, a successful, long-term plan includes healthy eating, increased physical activity, and behavior changes that fit your lifestyle. Please use the following ideas as a guide for discussing your weight-management plan with your health care professional.

What I can do today

☐ Understand the body's natural reaction to weight loss

☐ Discuss how weight-related health conditions may affect me

☐ Fill my prescription

My areas of focus

Healthy eating

Start with a change that you feel ready to make. Then, consider what else you can work into your routine.

Getting started

☐ Eat 3 meals a day, including breakfast

☐ Drink 8 glasses of water a day

☐ Reduce portions

☐ Increase protein

☐ Increase fiber

☐ Reduce sugar

☐ Reduce sodium

☐ Reduce carbohydrates

☐ Limit saturated and trans fats

Going a step further

☐ Find a healthy go-to snack that is low in carbs, sugar, and fat

☐ Increase servings of fruit

☐ Increase servings of vegetables

☐ Reduce soda

☐ Limit processed foods

☐ Consult a dietitian about _____

Daily goal: calories

Physical activity

Find an activity you will enjoy. To start, aim to be active at least 5 days a week for 30 minutes each day.

Getting started

☐ Walk briskly

☐ Bike

☐ Swim

☐ Dance

☐ Hike

☐ Play golf

☐ Do yoga or pilates

☐ Lift weights

☐ Do housework or yardwork

☐ Other _____

Going a step further

☐ Add new activity goals to your plan over time

Behavior and mindset

Certain behaviors and the way you think can play a role in your weight management.

☐ Keep a food journal

☐ Keep an activity journal

☐ Identify triggers that lead to emotional eating

☐ Identify challenging social eating situations

☐ Learn about eating mindfully

☐ Prepare for how to handle setbacks

☐ Get a full night's sleep (7-8 hours)

☐ Focus on small changes like _____

For more helpful information on healthy eating, visit <http://www.yourweighmatters.org/categories/nutrition/>

For additional physical activity suggestions, visit http://www.cdc.gov/healthyweight/physical_activity/index.html

OAC
Obesity Action Coalition

Note: Motivational tool designed by the clinic in collaboration with Obesity Action Coalition (OAC).. Reprinted with permission.

The clinic's electronic medical records were accessed for medical history, weight, height, and calculated BMI (Table 1).

Table 1

Patient's Demographics, Weight, Height, and BMI (July 2020-December 2020)

Age	Weight07	Height	BMI07	Weight08	BMI08	BMI1M	Weight09	BMI09	BMI2M	Weight10	BMI10	BMI3M	Weight11	BMI11	BMI4M	Weight12	BMI12	BMI5M
52	247	67.5	38.1	248	38.3	0.2	248	38.3	0.2	248	38.3	0.2	246	38.0	-0.2	248	38.3	0.2
33	196	65	32.6	194	32.3	-0.3	194	32.3	-0.3	192	31.9	-0.7	194	32.3	-0.3	194	32.3	-0.3
48	236	68	35.9	236	35.9	0.0	236	35.9	0.0	236	35.9	0.0	236	35.9	0.0	236	35.9	0.0
57	264	69.5	38.4	264	38.4	0.0	263	38.3	-0.1	263	38.3	-0.1	263	38.3	-0.1	263	38.3	-0.1
63	252	66	40.7	255	41.2	0.5	249	40.2	-0.5	249	40.2	-0.5	249	40.2	-0.5	249	40.2	-0.5
62	268	73	35.4	249	32.8	-2.5	249	32.8	-2.5	249	32.8	-2.5	249	32.8	-2.5	250	33.0	-2.4
41	250	64	42.9	250	42.9	0.0	250	42.9	0.0	250	42.9	0.0	250	42.9	0.0	250	42.9	0.0
57	192	65.5	31.5	192	31.5	0.0	192	31.5	0.0	192	31.5	0.0	192	31.5	0.0	191	31.3	-0.2
49	186	67	29.1	186	29.1	0.0	186	29.1	0.0	182	28.5	-0.6	186	29.1	0.0	186	29.1	0.0
62	198	62	36.2	198	36.2	0.0	198	36.2	0.0	198	36.2	0.0	198	36.2	0.0	198	36.2	0.0
71	198	62	36.2	198	36.2	0.0	198	36.2	0.0	187	34.2	-2.0	198	36.2	0.0	198	36.2	0.0
62	274	62	50.1	274	50.1	0.0	274	50.1	0.0	268	49.0	-1.1	247	45.2	-4.9	247	45.2	-4.9
51	316	72	42.9	310	42.0	-0.8	310	42.0	-0.8	309	41.9	-0.9	310	42.0	-0.8	310	42.0	-0.8
59	313	74	40.2	313	40.2	0.0	313	40.2	0.0	313	40.2	0.0	313	40.2	0.0	313	40.2	0.0
80	363	69	53.6	360	53.2	-0.4	360	53.2	-0.4	360	53.2	-0.4	360	53.2	-0.4	360	53.2	-0.4
30	347	69.5	50.5	347	50.5	0.0	347	50.5	0.0	347	50.5	0.0	347	50.5	0.0	347	50.5	0.0
47	218	68	33.1	218	33.1	0.0	222	33.8	0.6	222	33.8	0.6	221	33.6	0.5	221	33.6	0.5
39	204	66	32.9	204	32.9	0.1	203	32.8	-0.1	203	32.8	-0.1	203	32.8	-0.1	203	32.8	-0.1
38	239	70.5	33.8	243	34.4	0.6	238	33.7	-0.1	246	34.8	1.0	238	33.7	-0.1	238	33.7	-0.1
59	280	69	41.3	280	41.3	0.0	280	41.3	0.0	281	41.5	0.1	280	41.3	0.0	280	41.3	0.0
			775		773	-2.8		771	-4.2		768	-7.1		766	-9.6		766	-9.3

A trained multidisciplinary team of nurse practitioners, physicians, and medical assistants aided in implementing customized behavioral counseling for patients with BMI scores of over 25. The DNP student conducted clinic follow-ups, phone interviews, and behavioral counseling on selected patients once a month for six months. Data collection and evaluation were performed utilizing the electronic health records for patient height, weight, and BMI once a month.

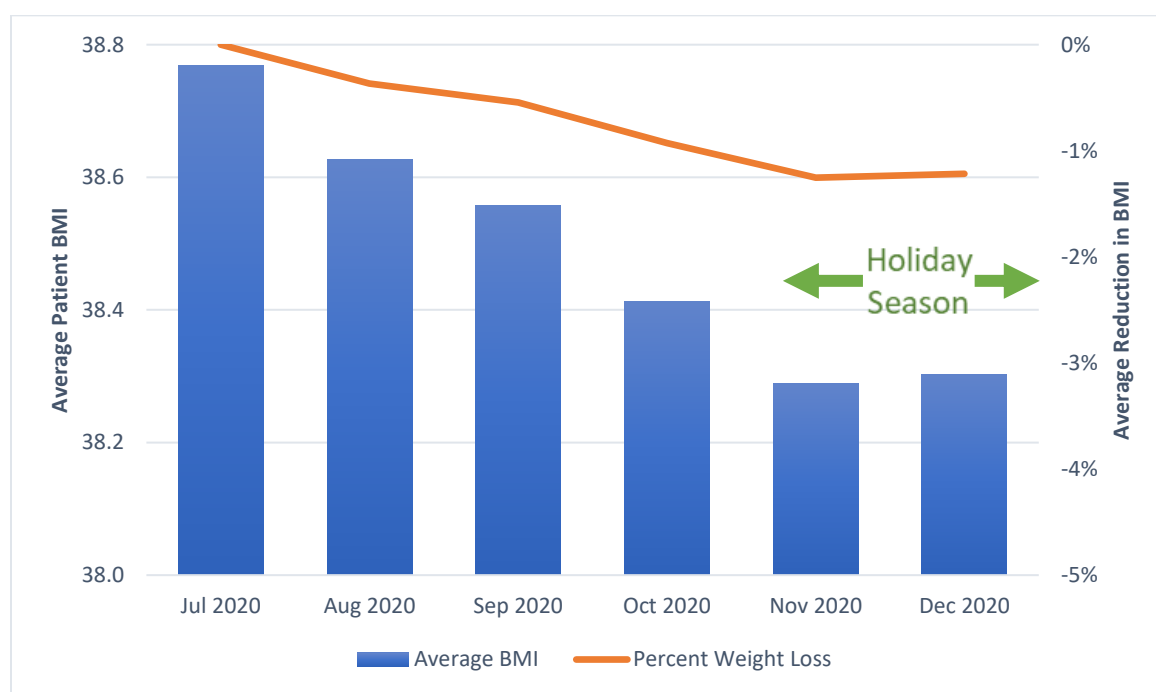
Results

The post-intervention data in August 2020 (i.e., BMI1M) revealed that, out of 20 patients, four (20%) achieved weight loss. In the second month (i.e., BMI2M) post-intervention, eight participants (40%) achieved a slight decrease in weight with corresponding BMI reduction. At the end of the project (i.e., BMI5M), 10 participants

(50%) reported decreased BMI. Monthly phone calls to all project participants were conducted to discuss behavior modification focused on their diet, activity, and motivation. The 10–15-minute phone calls included obtaining the current weight of each patient and integrating patient-tailored motivational interviews. Six months after project implementation, 50% of the participants achieved weight loss. Figure 3 displays the average monthly weight reduction and the overall result of a 1.2% decrease in BMI.

Figure 3

Post Intervention Results



Discussion

Facilitators and Barriers

The research literature suggested that obesity interventions involving intensive behavioral treatment with auxiliary health care professionals or allied health care combined with physician oversight through quarterly visits were more likely to produce

clinically significant weight loss (i.e., 5%+ loss of initial weight) than physician counseling alone (Balani et al., 2019). This EBP project was unable to recruit auxiliary and allied health providers due to a lack of staff and resources in the family-practice clinic setting to establish provider and patient relationships. To ensure motivational interview and behavior counseling are implemented in the future in their entirety, the provider must have available resources such as nutritionists and dietitians for patient-referral to counseling sessions. Primary care providers should consider opportunities to engage and motivate patients to promote weight loss to achieve effective behavioral change counseling.

Limitations

As this EBP project was a pilot program implemented during the COVID-19 pandemic, there was inconsistency in educating the providers regarding the motivational interview and behavior counseling techniques. Another barrier identified was patient hesitancy or state-mandated restrictions on the use of outdoor space or gyms. The pandemic also limited patient contact to phone calls; participants did not receive face-to-face counseling with the provider as would have been done under normal circumstances. The post-data collection also coincided with the holiday season (i.e., October 2020-December 2020) and could potentially skew the weight loss results due to seasonal fluctuations. With reliance on home-based scales for biometric measurement and patient recall, results may have been inconsistent or inaccurate.

Implications for Practice

This EBP project suggests successful outcomes in weight reduction and health improvement in a select patient population. The project's sustainability could result in

significant cost savings. According to CDC (2021), a 1% decrease in the predicted obesity trend would equate to 2.9 million fewer obese adults by 2030, a \$4.7 billion annual cost savings. The critical factors for this EBP project were the focus on sustainability, weight management, and overall lifestyle modification, not temporary weight changes. Unquestionably, obesity management in primary care settings needs more research, established guidelines, and practical recommendations to manage the obesity crisis. Studies and EBP projects should consider patient attitudes and motivation in communities with health disparities and lack of resources (e.g., financial, access to healthy food). This EBP project demonstrated that keeping the patient at the center of care while moving forward with the counseling sessions can yield successful weight reduction and maintenance. Reliable weight measuring tools in the telehealth environment should be explored. The project also outlined the importance of educating clinic staff and patients about obesity as a chronic disease condition, utilizing patients' support system, and family involvement can reinforce their motivation to lose weight. In follow-up visits, providers could assess patient progress with SMART goals (i.e., specific, measurable, attainable, relevant, time-based), review self-monitoring records, assist the patient with problem-solving, address barriers encountered since the last visit, and follow-up on referrals. Providers may consider referral to a behavioral psychologist, a dietitian with expertise in weight management, or a commercial program with established efficacy (e.g., Weight Watchers) to optimize weight loss success (Balani et al., 2019).

There is an excellent opportunity for revenue to be generated in a primary care setting associated with the recommended follow-up appointments among adult patients

with a BMI above 30. CMS (2012) will reimburse Medicare beneficiaries on visits that counsel for obesity. The CMS reimbursement model consists of 10 minute-15minute visits (maximum of 22 visits) with a 3 kg (6.6 lbs) weight-loss requirement during the first six months of treatment.

Conclusion

This project's sustainability could result in potential cost savings for the current health care system. These outcomes suggest that multidisciplinary provider involvement can influence weight reduction and improve the health of selected, at-risk patients. Brief telehealth visits can provide an opportunity to engage and motivate patients to improve adherence to treatment plans. Tailored, evidence-based nutritional assessment and motivational intensive behavioral counseling in a primary care setting are feasible practices and can reduce BMI among overweight and obese patients.

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